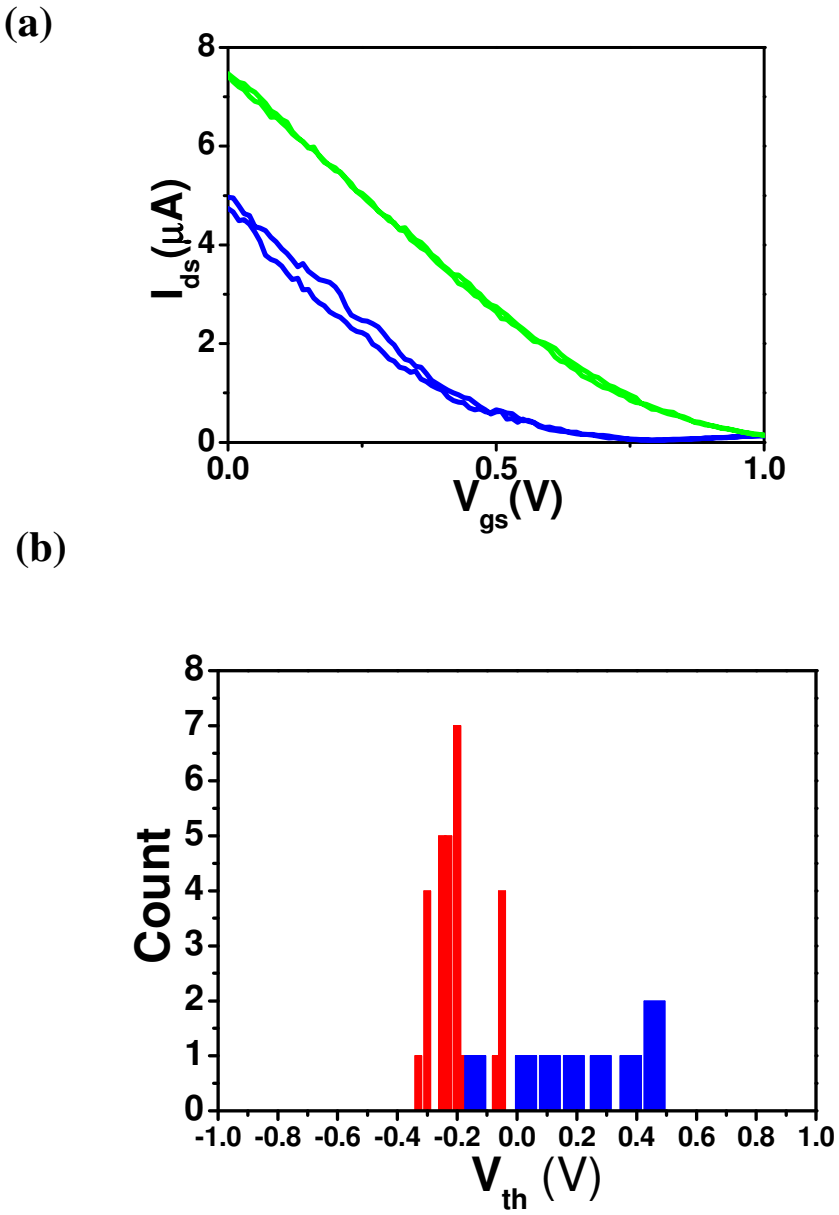
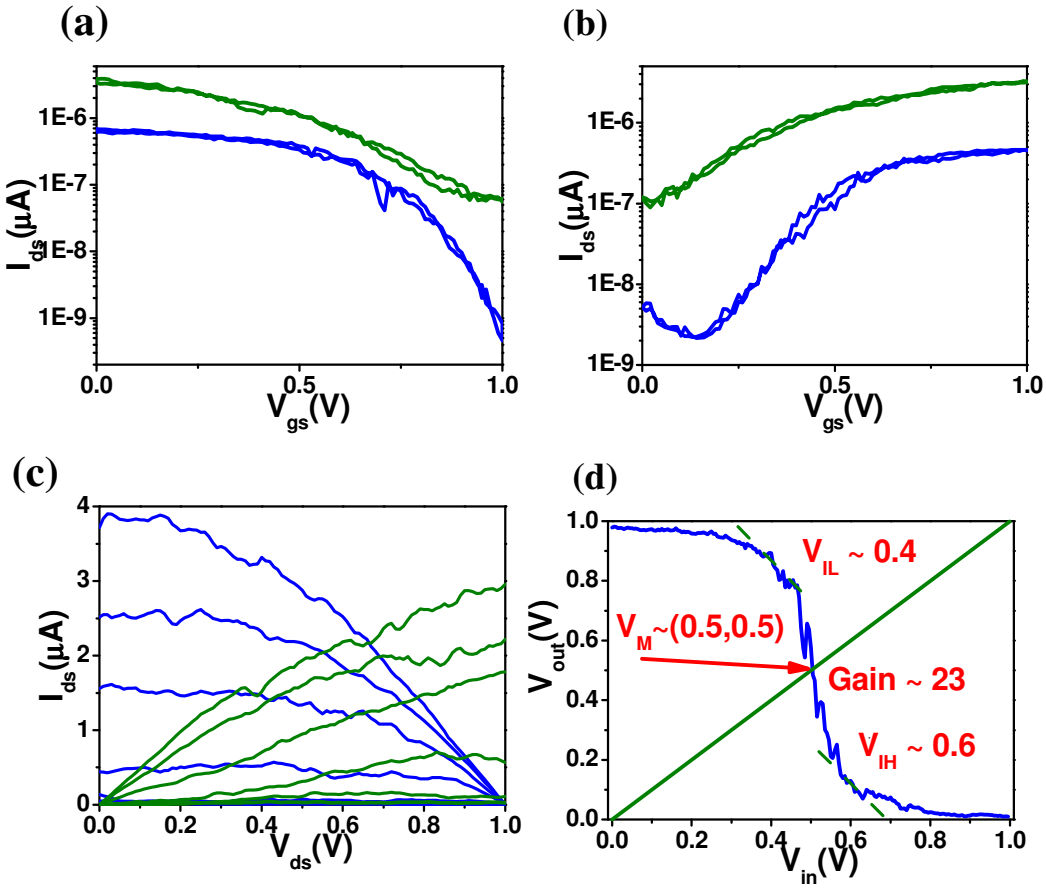
Supplementary Figures



Supplementary Figure S1 | Threshold voltage engineering of carbon nanotube field-effect transistor. (a) Transfer characteristics for two p-type CNT FETs with Pd (Green) and Ti (Blue) being the top gate metal and $|V_{ds}|$ = 1 V. (b) Distribution of the threshold voltage for p (red bars) and n (blue bars) type devices, both types of devices were fabricated using Pd as the top gate metal.



Supplementary Figure S2 | Electric characteristics of a carbon nanotube based complementary metal on semiconductor inverter. (a)Transfer curves for the p-type CNT FET in gate voltage range of 0 ~ 1 V with source voltage set to 1 V and $|V_{ds}|$ = 0.1 V (blue) and $|V_{ds}|$ = 1.0 V (olive). (b)Transfer curves for the n-type CNT FET in gate voltage range of 0 ~ 1 V with source voltage set to 0 V and $|V_{ds}|$ = 0.1 V (blue) and $|V_{ds}|$ = 1 V (olive). (c) Output curves for the p- (blue) and n- (olive) type CNT FET with $|V_{gs}|$ = 0 V, 0.2 V, 0.4 V, 0.6 V, 0.8 V and 1 V respectively. (d) Voltage-transfer characteristics (VTC) of the CMOS inverter with a gain ~ 23 for a power supply of V_{DD}=1V. Both the p-FET and n-FET are fabricated on the same CNT with a diameter of ~1.4 nm.

Supplementary Note

Supplementary Note 1 The yield of p- and n-FETs

Thirty-two pairs of n- and p-FETs were fabricated to test the yield. In general the yield for p-FET is more stable and higher than that for n-FET. In the experiment, the yield for p-FET was very high and up to 31/32. But the yield for n-FET was much lower with yield=8/32=25%. We found that the fabrication of n-type FET is very sensitive to the deposition condition of Sc film. Some time the yield for n-FET can be as high as over 90%, but in the tested case it was only about 25%.